```
=> d que l21
L9          877 SEA FILE=REGISTRY ABB=ON  PLU=ON  LI(L)GE/ELS(L)2-5/ELC.SUB

L11          51 SEA FILE=REGISTRY ABB=ON  PLU=ON  L9(L)2/ELC.SUB
L12           6 SEA FILE=REGISTRY ABB=ON  PLU=ON  L9 AND SI
L13          64 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L11
L14           4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L12
L15          16 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND ELECTROCHEM?/SC,SX

L16          19 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L14 OR L15
L18          14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND (BATTER? OR ANOD?
                OR CATHOD? OR ELECTROD?)
L19          20 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L16 OR L18
L20           1 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L13 AND (NANOTUB# OR
                NANOSTRUCTURE? OR NANOCRYST? OR NANOROD? OR NANOCOMPOSIT?
                OR NANOSCAL? OR NANOPARTICL? OR NANO(A)(TUB# OR STRUCTUR?
                OR CRYST? OR ROD? OR COMPOSIT? OR SCAL? OR PARTICL?))
L21          20 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 OR L20


=> d l21 1-20 ibib ed abs hitstr hitind

L21  ANSWER 1 OF 20  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:        2007:62453  HCAPLUS  Full-text
DOCUMENT NUMBER:         146:104067
TITLE:                   Hydrogen storage composition
INVENTOR(S):             Zhao, Ji-Cheng; Lemmon, John Patrick; Townsend,
                         Susan Holt; Minnear, William Paul; Brewer, Luke
                         Natheniel
PATENT ASSIGNEE(S):      General Electric Company, USA
SOURCE:                  U.S. Pat. Appl. Publ., 10pp., Cont.-in-part of
                         U.S. Ser. No. 747,838.
                         CODEN: USXXCO
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  8
PATENT INFORMATION:
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PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2007014683	A1	20070118	US 2006-522251	20060915
US 2005069487	A1	20050331	US 2003-675109	20030930
US 7115245	B2	20061003		
US 2005069488	A1	20050331	US 2003-675360	20030930
US 7115246	B2	20061003		
US 2005069489	A1	20050331	US 2003-675401	20030930
US 7115244	B2	20061003		
US 2005069490	A1	20050331	US 2003-675402	20030930
US 7115247	B2	20061003		
US 2005148466	A1	20050707	US 2003-747838	20031229
US 7175826	B2	20070213		
IN 2004DE02487	A	20061110	IN 2004-DE2487	20041214
EP 1550634	A2	20050706	EP 2004-257991	20041221
EP 1550634	A3	20051026		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
JP 2005230809	A	20050902	JP 2004-380334	20041228
CN 1672784	A	20050928	CN 2004-10103188	20041229

US 2007141415	A1	20070621	US 2006-566347	20061204
PRIORITY APPLN. INFO.:			US 2003-675109	A2 20030930
			US 2003-675360	A2 20030930
			US 2003-675401	A2 20030930
			US 2003-675402	A2 20030930
			US 2003-747838	A2 20031229
			US 2005-313629	A2 20051221
			US 2005-314758	A2 20051221
			US 2006-522251	A2 20060915

ED Entered STN: 19 Jan 2007

AB A hydrogen storage material includes at least one of AlLi, Al2Li3, Al4Li9, Al3Mg2, Al12Mg17, AlB12, Al4C3, AlTi2C, AlTi3C, AlZrC2, Al3Zr5C, Al3Zr2C4, Al3Zr2C7, AlB2, AlB12, AlSi, B6Ca, B6K, B12Li, B6Li, B4Li, B3Li, B2Li, BLi, B6Li7, BLi3, Ca2Si, CaSi, CaSi2, Ge4K, GeK, GeK3, GeLi3, Ge5Li22, Mg2Ge, Ge4Na, GeNa, GeNa3, KSi, KC4, K4Si23, K4C3, LiC, Li4C3, LiC6, Li2Si5, Li13Si4, Li7Si3, Li12Si7, MgB2, MgB4, MgB7, MgC2, Mg2C3, Mg2Si, NaB6, NaB15, NaB16, Na4C3, NaC4, NaSi, NaSi2, or Na4Si23. The composition includes an oxide, such as silica, alumina, ceria, titania, zirconia, tungsten oxide, vanadium pentoxide, nickel oxide, cobalt oxide, manganese oxide, or molybdenum oxide. The composition includes a catalyst, such as Ba, Ca, Cr, Co, Cu, Fe, Ge, Hf, Ir, La, Mn, Mo, Nb, Os, Rh, Re, Ru, Si, Ti, W, Y, or Zr. The catalyst is applied on the surface of the hydrogen storage material covering 10-50% of its surface.

IT **12025-84-2**, Ge5Li22 **123188-38-5**
(hydrogen storage material; hydrogen storage composition)

RN 12025-84-2 HCAPLUS
CN Germanium, compd. with lithium (5:22) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	5	7440-56-4
Li	22	7439-93-2

RN 123188-38-5 HCAPLUS
CN Germanium, compd. with lithium (1:3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	1	7440-56-4
Li	3	7439-93-2

INCL 420400000; 423439000; 423289000; 420407000; 420542000; 420900000
CC 52-3 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 67

IT 1299-86-1, Aluminum carbide (Al4C3) 1310-52-7 12004-68-1 12007-25-9, Magnesium boride (MgB2) 12007-74-8, Magnesium boride (MgB4) 12007-99-7, Calcium boride (caB6) 12013-55-7, Calcium silicide (CaSi) 12013-56-8, Calcium silicide (CaSi2) 12025-09-1, GeK **12025-84-2**, Ge5Li22 12041-50-8, Aluminum boride (AlB2)

12041-54-2, Aluminum boride (AlB12) 12042-37-4, AlLi 12042-55-6, Aluminum silicide (AlSi) 12049-73-9, Calcium silicide (Ca2Si) 12057-39-5, Lithium silicide (Li22Si5) 12122-46-2, Magnesium carbide (MgC2) 12151-74-5, Magnesium carbide (Mg2C3) 12164-12-4, Sodium silicide (NaSi) 12229-58-2, Potassium boride (KB6) 12253-44-0 12254-22-7 12265-23-5, Sodium boride (NaB6) 12265-93-9 12266-21-6, Sodium silicide (Na4Si23) 12267-74-2, Lithium boride (LiB4) 12437-76-2, Potassium silicide (K4Si23) 12447-69-7, Lithium boride (LiB6) 12513-40-5, Sodium boride (NaB15) 12523-56-7, Lithium boride (LiB) 12537-81-4, Aluminum titanium carbide (AlTi2C) 16789-24-5, Potassium silicide (KSi) 22831-39-6, Magnesium silicide (Mg2Si) 39323-44-9, Lithium carbide (Li4C3) 51846-18-5 55575-96-7, Lithium silicide (Li13Si4) 57594-80-6, Aluminum titanium carbide (AlTi3C) 57788-93-9, Lithium carbide (LiC) 58072-03-0, Lithium boride (LiB2) 58572-50-2, Lithium boride (LiB12) 59977-60-5, Magnesium boride (MgB7) 60862-52-4, Sodium silicide (NaSi2) 66472-94-4, Lithium boride (Li3B) 66590-49-6, Sodium boride (NaB16) 71012-86-7, Lithium boride (Li7B6) 72780-07-5, Aluminum zirconium carbide (AlZrC2) 74969-13-4, Lithium silicide (Li7Si3) 75138-13-5, Aluminum zirconium carbide (Al3Zr5C) 76036-33-4, Lithium silicide (Li12Si7) 99786-87-5, Potassium, compound with germanium (1:4) 115268-89-8, Aluminum zirconium carbide (Al3Zr2C4) 117774-04-6 122483-26-5 **123188-38-5** 128665-92-9 185752-83-4, Lithium boride (LiB3) 476300-71-7, Lithium carbide (LiC6) 848353-12-8, Sodium carbide (Na4C3) 848353-15-1, Potassium carbide (K4C3) 848353-20-8, Aluminum zirconium carbide (Al3Zr2C7) 848353-23-1, Potassium carbide (KC4) 848353-24-2, Sodium carbide (NaC4)
(hydrogen storage material; hydrogen storage composition)

L21 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:681281 HCAPLUS Full-text
DOCUMENT NUMBER: 145:127622
TITLE: High-capacity nanostructured germanium-containing materials and their lithium alloys for battery electrodes
INVENTOR(S): Graetz, Jason A.; Fultz, Brent T.; Ahn, Channing; Yazami, Rachid
PATENT ASSIGNEE(S): California Institute of Technology, USA
SOURCE: PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006073427	A2	20060713	WO 2005-US13268	20050418
WO 2006073427	A3	20060921		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG,

BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP 1743392 A2 20070117 EP 2005-856620 20050418

R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, LV, MK, YU

PRIORITY APPLN. INFO.: US 2004-829598 A 20040422

WO 2005-US13268 W 20050418

ED Entered STN: 14 Jul 2006

AB Electrodes comprising an alkali metal, for example, lithium, alloyed with nanostructured materials of formula SizGe(z-1), where 0 <z≤ 1; formula SizGe(z-1),where 0 < z < 1; and/or germanium exhibit a combination of improved capacities, cycle lives, and/or cycling rates compared with similar electrodes made from graphite. These electrodes are useful as anodes for secondary electrochem. cells, for example, batteries and electrochem. supercapacitors.

IT **897927-98-9**
(high-capacity nanostructured germanium-containing materials and their lithium alloys for battery electrodes)

RN 897927-98-9 HCAPLUS

CN Germanium alloy, nonbase, Ge,Li,Si (9CI) (CA INDEX NAME)

Component	Component Registry Number
Ge	7440-56-4
Li	7439-93-2
Si	7440-21-3

IC ICM H01M

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 76

IT 11148-21-3 **897927-98-9**
(high-capacity nanostructured germanium-containing materials and their lithium alloys for battery electrodes)

L21 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:474800 HCAPLUS Full-text

DOCUMENT NUMBER: 143:29429

TITLE: Method of manufacturing lithium **anode** for **battery**

INVENTOR(S): Guterman, Vladimir E.; Cho, Chung-Kun; Lee, Sang-Mock

PATENT ASSIGNEE(S): S. Korea

SOURCE: U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005118507	A1	20050602	US 2004-990482	20041118
KR 2005052920	A	20050607	KR 2003-86503	20031201
JP 2005174924	A	20050630	JP 2004-338025	20041122
CN 1624954	A	20050608	CN 2004-10097852	20041201

PRIORITY APPLN. INFO.: KR 2003-86503 A 20031201

ED Entered STN: 03 Jun 2005
AB The invention is related to a lithium **anode**, a method of the manufacturing the same and a **battery** using the **anode**. The lithium **anode** comprises a metal layer (or alloy layer) that is inert to lithium and a metal layer (or alloy layer) that is reactive with lithium. The two layers may form a temporary protective layer on the lithium surface, thus providing a smooth surface. By obtaining the smooth surface, an upper polymer layer and an inorg. layer may be deposited without any difficulty and the adhesive force may be strong. Thus, the lithium **anode** according to the present invention has superior cycling characteristics and improved storage characteristics.
IT **54355-30-5**
(method of manufacturing lithium **anode** for **battery**)
RN 54355-30-5 HCAPLUS
CN Germanium alloy, nonbase, Ge,Li (9CI) (CA INDEX NAME)

Component	Component Registry Number
Ge	7440-56-4
Li	7439-93-2

IC ICM H01M004-40
ICS H01M004-66; B05D005-12; H01M004-04
INCL 429231950; 429245000; 427123000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST **battery** lithium **anode** manuf
IT Oxides (inorganic), uses
(lithium composite; method of manufacturing lithium **anode** for **battery**)
IT Secondary **batteries**
(lithium; method of manufacturing lithium **anode** for **battery**)
IT **Battery anodes**
(method of manufacturing lithium **anode** for **battery**)
IT Lithium alloy, base
(method of manufacturing lithium **anode** for **battery**)
IT 7439-89-6, Iron, uses 7439-93-2, Lithium, uses 7440-02-0, Nickel, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 7704-34-9, Sulfur, uses 11101-28-3 11102-77-5 11148-32-6 12798-95-7 33454-82-9, Lithium triflate 37186-88-2 37218-62-5 39300-27-1 53680-59-4 53740-64-0 **54355-30-5** 65168-65-2 68848-64-6 73906-94-2 74432-42-1, Lithium polysulfide 90066-19-6 120213-38-9
(method of manufacturing lithium **anode** for **battery**)

L21 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:324055 HCAPLUS Full-text
DOCUMENT NUMBER: 142:375862
TITLE: Hydrogen storage compositions and methods of manufacture thereof
INVENTOR(S): Townsend, Susan Holt; Minnear, William Pual; Zhao, Ji-Cheng; Lemmon, John; Brewer, Luke Nathanial; Rijssenbeek, Job Thomas
PATENT ASSIGNEE(S): General Electric Company, USA
SOURCE: PCT Int. Appl., 57 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 8
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005032709	A2	20050414	WO 2004-US33056	20040930
WO 2005032709	A3	20050811		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005069487	A1	20050331	US 2003-675109	20030930
US 7115245	B2	20061003		
US 2005069488	A1	20050331	US 2003-675360	20030930
US 7115246	B2	20061003		
US 2005069489	A1	20050331	US 2003-675401	20030930
US 7115244	B2	20061003		
US 2005069490	A1	20050331	US 2003-675402	20030930
US 7115247	B2	20061003		
US 2005098035	A1	20050512	US 2003-702955	20031106
US 7029517	B2	20060418		
US 2005148466	A1	20050707	US 2003-747838	20031229
US 7175826	B2	20070213		
EP 1670578	A2	20060621	EP 2004-789538	20040930
R: DE, FR, GB, IT, SE				
CN 1859970	A	20061108	CN 2004-80028111	20040930
JP 2007512213	T	20070517	JP 2006-534329	20040930
IN 2004DE02487	A	20061110	IN 2004-DE2487	20041214
EP 1550634	A2	20050706	EP 2004-257991	20041221
EP 1550634	A3	20051026		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, BA, HR, IS, YU				
JP 2005230809	A	20050902	JP 2004-380334	20041228
CN 1672784	A	20050928	CN 2004-10103188	20041229

PRIORITY APPLN. INFO.:			
US 2003-675109	A	20030930	
US 2003-675360	A	20030930	
US 2003-675401	A	20030930	
US 2003-675402	A	20030930	
US 2003-702955	A	20031106	
US 2003-747838	A	20031229	
WO 2004-US33056	W	20040930	

ED Entered STN: 15 Apr 2005
AB Disclosed herein is a method for making a combinatorial library comprising disposing on a substrate comprising silicon, graphite, boron, boron carbide,

boron nitride, aluminum, germanium, silicon nitride, silicon carbide or silicon boride at least one reactant, wherein the reactants are lithium, magnesium, sodium, potassium, calcium, aluminum or a combination comprising at least one of the foregoing reactants; heat-treating the substrate to create a diffusion multiple having at least two phases; contacting the diffusion multiple with hydrogen; detecting any absorption of hydrogen; and/or detecting any desorption of hydrogen.

IT **12025-84-2**, Ge5Li22 **123188-38-5**
(hydrogen storage compns. and methods of manufacture thereof)

RN 12025-84-2 HCAPLUS
CN Germanium, compd. with lithium (5:22) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	5	7440-56-4
Li	22	7439-93-2

RN 123188-38-5 HCAPLUS
CN Germanium, compd. with lithium (1:3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	1	7440-56-4
Li	3	7439-93-2

IC ICM B01J019-00
ICS C01B003-00; C01B006-21; C01B006-24

CC 48-11 (Unit Operations and Processes)
Section cross-reference(s): **52**

IT 1299-86-1, Aluminum carbide (Al4C3) 1310-52-7 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7440-09-7, Potassium, uses 7440-23-5, Sodium, uses 7440-70-2, Calcium, uses 12004-68-1 12007-25-9, Magnesium boride (MgB2) 12007-74-8, Magnesium boride (MgB4) 12007-99-7, Calcium boride (CaB6) 12013-55-7, Calcium silicide (CaSi) 12013-56-8, Calcium silicide (CaSi2) 12025-09-1, GeK **12025-84-2**, Ge5Li22 12041-50-8, Aluminum boride (AlB2) 12041-54-2, Aluminum boride (AlB12) 12042-37-4 12042-55-6, Aluminum silicide (AlSi) 12049-73-9, Calcium silicide (Ca2Si) 12057-39-5, Lithium silicide (Li22Si5) 12122-46-2, Magnesium carbide (MgC2) 12151-74-5, Magnesium carbide (Mg2C3) 12164-12-4, Sodium silicide (NaSi) 12229-58-2 12253-44-0 12265-23-5, Sodium boride (NaB6) 12265-93-9 12266-21-6, Sodium silicide (Na4Si23) 12267-74-2 12437-76-2, Potassium silicide (K4Si23) 12447-69-7 12523-56-7, Lithium boride (LiB) 12537-81-4, Aluminum titanium carbide (AlTi2C) 16789-24-5, Potassium silicide (KSi) 22831-39-6, Magnesium silicide (Mg2Si) 39323-44-9, Lithium carbide (Li4C3) 51846-18-5 55575-96-7, Lithium silicide (Li13Si4) 57594-80-6, Aluminum titanium carbide (AlTi3C) 57788-93-9, Lithium carbide (LiC) 58072-03-0, Lithium boride (LiB2) 58572-50-2, Lithium boride (LiB12) 59977-60-5, Magnesium boride (MgB7) 60862-52-4, Sodium silicide (NaSi2) 66472-94-4, Lithium boride (Li3B) 66590-49-6, Sodium boride (NaB16) 71012-86-7, Lithium boride (Li7B6) 72780-07-5, Aluminum zirconium carbide (AlZrC2) 74969-13-4, Lithium silicide (Li7Si3) 75138-13-5, Aluminum zirconium carbide (Al3Zr5C) 76036-33-4, Lithium silicide (Li12Si7) 99786-87-5 115268-89-8, Aluminum zirconium carbide (Al3Zr2C4) 117774-04-6 122483-26-5 **123188-38-5** 128665-92-9 185752-83-4, Lithium boride (LiB3) 476300-71-7, Lithium carbide (LiC6) 848353-12-8, Sodium carbide

(Na4C3) 848353-15-1, Potassium carbide (K4C3) 848353-20-8, Aluminum zirconium carbide (Al3Zr2C7) 848353-23-1, Potassium carbide (KC4) 848353-24-2, Sodium carbide (NaC4) 849681-84-1 849681-85-2
(hydrogen storage compns. and methods of manufacture thereof)

L21 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:281655 HCAPLUS Full-text
DOCUMENT NUMBER: 142:319899
TITLE: Manufacture of hydrogen storage compositions
INVENTOR(S): Zhao, Ji-Cheng; Lemmon, John Patrick
PATENT ASSIGNEE(S): General Electric Company, USA
SOURCE: U.S. Pat. Appl. Publ., 12 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 8
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005069490	A1	20050331	US 2003-675402	20030930
US 7115247	B2	20061003		
WO 2005032709	A2	20050414	WO 2004-US33056	20040930
WO 2005032709	A3	20050811		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1670578	A2	20060621	EP 2004-789538	20040930
R: DE, FR, GB, IT, SE				
CN 1859970	A	20061108	CN 2004-80028111	20040930
JP 2007512213	T	20070517	JP 2006-534329	20040930
US 2007014683	A1	20070118	US 2006-522251	20060915

PRIORITY APPLN. INFO.:

US 2003-675109	A	20030930
US 2003-675360	A	20030930
US 2003-675401	A	20030930
US 2003-675402	A	20030930
US 2003-702955	A	20031106
US 2003-747838	A	20031229
WO 2004-US33056	W	20040930

ED Entered STN: 01 Apr 2005
AB A method for making and screening a combinatorial library includes disposing at least one reactant, especially Li, Ge, or Mg, on an aluminum substrate; heat treating the substrate at 400-600° to create a diffusion multiple having at least one phase; contacting the diffusion multiple with hydrogen; detecting

any absorption of hydrogen; and/or detecting any desorption of hydrogen. The resultant diffusion multiple is sliced and ground and analyzed by electron microprobe anal., or electron backscatter diffraction to identify at least one phase of the diffusion couple. The suitability of at least one phase for the adsorption of hydrogen is determined by time of flight secondary mass ion spectrometry, thermal imaging, or by using a tungsten oxide detector. Hydrogen is recovered by contacting a compound, such as AlLi, Al2Li3, Al4Li9, Al3Mg2, Al12Mg17, AlB12, Ge4K, GeK, GeK3, GeLi3, Ge5Li22, Mg2Ge, Ge4Na, GeNa, GeNa3, aluminum doped Ge4K, aluminum doped GeK, aluminum doped GeK3, aluminum doped GeLi3, aluminum doped Ge5Li22, aluminum-doped Mg2Ge, aluminum doped Ge4Na, aluminum doped GeNa, or aluminum doped GeNa3, with hydrogen to form a hydrogenated compound; and heating the hydrogenated compound A dopant can be added to the compound A system for the storage and recovery of hydrogen consists of a hydrogen generation reactor in fluid communication with a hydride recycle reactor, wherein the hydrogen generation reactor utilizes hydrides of light metal aluminides and germanides to recover hydrogen. A metal hydride slurry is transferred to the hydrogen generation reactor from a slurry production reactor. A regenerated metal hydride is transferred from the hydride recycle reactor to a slurry production reactor. Water is introduced into the hydrogen generation reactor. Hydrogen is generated in the hydrogen generation reactor by the use of heat from microwave radiation, convective heat, or exhaust heat from a fuel cell.

IT **12025-84-2**, Ge5Li22 **123188-38-5**
(manufacture of hydrogen storage compns.)

RN 12025-84-2 HCAPLUS
CN Germanium, compd. with lithium (5:22) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	5	7440-56-4
Li	22	7439-93-2

RN 123188-38-5 HCAPLUS
CN Germanium, compd. with lithium (1:3) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	1	7440-56-4
Li	3	7439-93-2

IC ICM C01B003-04
INCL 423658200
CC 52-3 (**Electrochemical**, Radiational, and Thermal Energy Technology)
IT 1310-52-7 7439-93-2, Lithium, processes 7439-95-4, Magnesium, processes 7440-56-4, Germanium, processes 12004-68-1 12025-09-1, GeK **12025-84-2**, Ge5Li22 12041-54-2, Aluminum boride (AlB12) 12042-37-4, AlLi 12253-44-0 12254-22-7 12265-93-9 51846-18-5 99786-87-5 117774-04-6 122483-26-5 **123188-38-5** 128665-92-9
(manufacture of hydrogen storage compns.)
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:1042377 HCAPLUS Full-text
DOCUMENT NUMBER: 142:300813

TITLE: Preparation of Li4.4GexSi1-x alloys by mechanical milling process and their properties as **anode** materials in all-solid-state lithium **batteries**

AUTHOR(S): Hashimoto, Yuji; Machida, Nobuya; Shigematsu, Toshihiko

CORPORATE SOURCE: Department of Chemistry, Konan University, Higashinada-ku, Kobe, 658-8501, Japan

SOURCE: Solid State Ionics (2004), 175(1-4), 177-180
CODEN: SSIOD3; ISSN: 0167-2738

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 06 Dec 2004

AB Li4.4GexSi1-x alloys were prepared using high-energy ball milling. The Li4.4GexSi1-x alloys formed a solid solution over the composition range $0 \leq x \leq 1$. Those alloys were isomorphic with an Li15Ge4 crystalline phase that had a D86 structure with space group I43d. The lattice consts. of the alloys increased with an increase in x. Li4.4GexSi1-x alloys were studied as **anode** material for all-solid-state Li **batteries** with an inorg. solid electrolyte, a-60Li2S·40SiS2 (mol%). Of the alloys, the Li4.4Ge0.67Si0.33 alloy showed the largest sp. capacity of 190 mA-h/g and good charge-discharge reversibility.

IT **81065-21-6 845910-43-2 845910-44-3 845910-45-4**
(preparation of Li4.4GexSi1-x alloy **anode** material for solid state lithium **batteries** by ball milling)

RN 81065-21-6 HCAPLUS

CN Germanium alloy, base, Ge 70,Li 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	70	7440-56-4
Li	30	7439-93-2

RN 845910-43-2 HCAPLUS

CN Germanium alloy, base, Ge 55,Li 35,Si 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	55	7440-56-4
Li	35	7439-93-2
Si	10	7440-21-3

RN 845910-44-3 HCAPLUS

CN Germanium alloy, base, Ge 45,Li 38,Si 17 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	45	7440-56-4
Li	38	7439-93-2
Si	17	7440-21-3

RN 845910-45-4 HCAPLUS

CN Lithium alloy, base, Li 44,Si 30,Ge 26 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number

Li	44	7439-93-2
Si	30	7440-21-3
Ge	26	7440-56-4

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST germanium lithium silicon alloy **anode** ball milling lithium **battery**
IT Secondary **batteries**
(lithium; preparation of Li4.4GexSi1-x alloy **anode** material for solid state lithium **batteries** by ball milling)
IT Ball milling
Battery anodes
Solid state secondary **batteries**
(preparation of Li4.4GexSi1-x alloy **anode** material for solid state lithium **batteries** by ball milling)
IT 7439-93-2, Lithium, uses 7440-21-3, Silicon, uses 7440-56-4, Germanium, uses
(in preparation of Li4.4GexSi1-x alloy **anode** material for solid state lithium **batteries** by ball milling)
IT **81065-21-6** 350621-01-1 **845910-43-2** **845910-44-3** **845910-45-4**
(preparation of Li4.4GexSi1-x alloy **anode** material for solid state lithium **batteries** by ball milling)
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:817995 HCAPLUS Full-text
DOCUMENT NUMBER: 139:326049
TITLE: Thermal **battery**
INVENTOR(S): Daoud, Sami
PATENT ASSIGNEE(S): Textron Systems, USA
SOURCE: U.S. Pat. Appl. Publ., 23 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003194602	A1	20031016	US 2002-122547	20020412
US 6818344	B2	20041116		
WO 2003088379	A2	20031023	WO 2003-US9837	20030328
WO 2003088379	A9	20040304		
WO 2003088379	A3	20050331		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003223398 A1 20031027 AU 2003-223398 20030328
EP 1535359 A2 20050601 EP 2003-719521 20030328
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK
PRIORITY APPLN. INFO.: US 2002-122547 A 20020412
WO 2003-US9837 W 20030328

ED Entered STN: 17 Oct 2003
AB A thermal **battery** is housed in a chamber that utilizes micro-electromech. systems (MEMS)-based technol. to offer superior chemical stability and advantageous mech. and thermal properties. The thermal **battery** of the present invention is activated by heat, for example heat generated by a pyrotechnic charge, for example thermite, for immediate and thorough activation of the electrolyte. The **anode**, **cathode** and electrolyte of the **battery** are formed of pellets having a curved interface for increased c.d. The electrolyte preferably comprises a three-component eutectic salt mixture In this manner, the thermal **battery** of the present invention is well suited for applications that require highly integrated thermal **batteries** that are relatively small in phys. size, yet are capable of reliable performance over a wide range of operating conditions.
IT **612816-08-7 612816-09-8**
(thermal **battery**)
RN 612816-08-7 HCAPLUS
CN Germanium alloy, base, Ge 75-85,Li 15-25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	75 - 85	7440-56-4
Li	15 - 25	7439-93-2

RN 612816-09-8 HCAPLUS
CN Germanium alloy, base, Ge 80,Li 20 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	80	7440-56-4
Li	20	7439-93-2

IC ICM H01M006-36
ICS H01M002-12; H01M002-02; H01M004-48
INCL 429112000; X42-912.9; X42-917.6; X42-918.8; X42-923.15; X42-915.3
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 50, 76
ST thermal **battery**
IT Alloys, uses
(alkaline earth; thermal **battery**)
IT Alloys, uses
(alkali metal; thermal **battery**)
IT Alkali metals, uses
Alkaline earth metals
(alloys; thermal **battery**)
IT Micromachines
(microelectromech. devices; thermal **battery**)
IT Clays, uses
(porous; thermal **battery**)
IT **Battery anodes**

Battery cathodes
Primary **battery** separators
Pyrotechnic compositions
Surfactants
(thermal **battery**)
IT Zeolites (synthetic), uses
(thermal **battery**)
IT Fluoro rubber
(thermal **battery**)
IT Fluoropolymers, uses
(thermal **battery**)
IT Primary **batteries**
(thermal; thermal **battery**)
IT 7439-95-4, Magnesium, uses
(powder; thermal **battery**)
IT 7440-21-3, Silicon, uses
(substrate; thermal **battery**)
IT 409-21-2, Sic, uses 497-19-8, Sodium carbonate, uses 554-13-2, Lithium carbonate 584-08-7, Potassium carbonate 584-09-8, Rubidium carbonate 1314-34-7, Vanadium oxide v2o3 1314-62-1, Vanadium oxide (V2O5), uses 7440-62-2, Vanadium, uses 12036-21-4, Vanadium dioxide **612816-08-7 612816-09-8**
(thermal **battery**)
IT 151-21-3, Sodium lauryl sulfate, uses
(thermal **battery**)
IT 7440-48-4D, Cobalt, nitro complexes, perchlorate salts 7631-86-9, Silica, uses 8049-32-9, Thermite 9002-84-0, Teflon
(thermal **battery**)
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:389059 HCAPLUS Full-text
DOCUMENT NUMBER: 139:103655
TITLE: The electrochemistry of germanium nitride versus lithium
AUTHOR(S): Pereira, N.; Balasubramanian, M.; Dupont, L.; McBreen, J.; Klein, L. C.; Amatucci, G. G.
CORPORATE SOURCE: Telcordia Technologies, Red Bank, NJ, 07701, USA
SOURCE: Materials Research Society Symposium Proceedings (2003), 756(Solid State Ionics--2002), 281-287
CODEN: MRSPDH; ISSN: 0272-9172
PUBLISHER: Materials Research Society
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 21 May 2003
AB Germanium nitride (Ge3N4) was examined as a potential neg. **electrode** material for Li-ion **batteries**. The electrochem. of Ge3N4 vs. Li showed high reversible capacity (500mAh/g) and good capacity retention during cycling. A combination of ex-situ and in-situ x-ray diffraction (XRD), ex-situ transmission electron microscopy (TEM) and ex-situ selective area electron diffraction (SAED) analyses revealed evidence supporting the conversion of a layer of Ge3N4 crystal into an amorphous Li3N+LixGe **nanocomposite** during the first lithiation. The **nanocomposite** was electrochem. active via a reversible Li-Ge alloying reaction while a core of unreacted Ge3N4 crystal remained inactive. The lithium/metal nitride conversion reaction process was kinetically hindered resulting in limited capacity. Mech. milling was found to improve the material capacity.
IT **54355-30-5**

(formation by electrochem. lithiation of Ge3N4)
RN 54355-30-5 HCAPLUS
CN Germanium alloy, nonbase, Ge,Li (9CI) (CA INDEX NAME)

Component	Component Registry Number
Ge	7440-56-4
Li	7439-93-2

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 78
ST germanium nitride **electrode** lithium ion **battery** capacitance lithiation decompn
IT **Battery electrodes**
(Ge3N4 as potential neg. **electrode** material for Li-ion **batteries**)
IT **Nanocomposites**
(formation of Li3N+LixGe **nanocomposite** by electrochem. lithiation of Ge3N4)
IT Secondary **batteries**
(lithium; electrochem. of germanium nitride vs. lithium)
IT Electric capacitance
(of Ge3N4 as potential neg. **electrode** material for Li-ion **batteries**, in PC/GMC containing LiPF6)
IT 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate
(elec. capacitance of Ge3N4 as potential neg. **electrode** material for Li-ion **batteries**, in PC/GMC containing LiPF6)
IT 26134-62-3, Lithium nitride **54355-30-5**
(formation by electrochem. lithiation of Ge3N4)
IT 12065-36-0, Germanium nitride Ge3N4
(potential neg. **electrode** material for Li-ion **batteries**)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L21 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:238072 HCAPLUS Full-text
DOCUMENT NUMBER: 136:250286
TITLE: **Anode** active mass for secondary nonaqueous electrolyte **battery**
INVENTOR(S): Sato, Toshitada; Nakamoto, Takayuki; Shimamura, Harushige; Yonemura, Koji; Negi, Noriyuki; Takeshita, Yukiteru; Yamamoto, Hiroyoshi; Kohiyori, Motoji
PATENT ASSIGNEE(S): Sumitomo Metal Industries, Ltd., Japan; Matsushita Electric Industrial Co., Ltd.
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002093411	A	20020329	JP 2000-273853	20000908

PRIORITY APPLN. INFO.: JP 2000-273853 20000908

ED Entered STN: 28 Mar 2002
AB The **anode** active mass contains a non-crystalline Si and/or Ge phase. The **anode** active mass may also contain a Si and/or Ge intermetallic compound with Group IIA, transition metal, Group IIIA, and/or Group IVA elements.
IT **12064-90-3**
(noncryst. intermetallic compound **anode** active mass for secondary lithium **batteries**)
RN 12064-90-3 HCAPLUS
CN Germanium, compd. with lithium (1:1) (8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	1	7440-56-4
Li	1	7439-93-2

IC ICM H01M004-38
ICS C22C045-00; H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary **battery anode** noncryst silicon; germanium noncryst **anode** secondary **battery**; intermetallic compd secondary **battery anode**
IT **Battery anodes**
(noncryst. silicon and germanium and intermetallic compound **anode** active mass for secondary lithium **batteries**)
IT 7440-56-4, Germanium, uses
(noncryst. germanium **anode** active mass for secondary lithium **batteries**)
IT 7440-02-0D, Nickel, intermetallic compds. with germanium 7440-32-6D, Titanium, intermetallic compds. with silicon 7440-48-4D, Cobalt, intermetallic compds. with silicon 7440-62-2D, Vanadium, intermetallic compds. with silicon **12064-90-3** 12201-89-7, Nickel silicide (NiSi2) 403861-30-3, Lithium silicide (Li7Si6)
(noncryst. intermetallic compound **anode** active mass for secondary lithium **batteries**)
IT 7440-21-3, Silicon, uses
(noncryst. silicon **anode** active mass for secondary lithium **batteries**)

L21 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:632213 HCAPLUS Full-text
DOCUMENT NUMBER: 135:213456
TITLE: Secondary lithium **batteries**
INVENTOR(S): Kusumoto, Yasuyuki; Fujimoto, Masahisa; Ikeda, Hiroaki; Fujitani, Nobu
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001236955	A	20010831	JP 2000-44702	20000222

JP 3706521	B2	20051012		
US 2003054252	A1	20030320	US 2001-789004	20010221
US 6613477	B2	20030902		
PRIORITY APPLN. INFO.:			JP 2000-44702 A	20000222

ED Entered STN: 31 Aug 2001
AB The **batteries** use **cathode** active mass containing a Li-Bi or Li-Sb alloy. The **anode** active mass contains a Li-Si or Li-Ge alloy.
IT **12025-84-2**
(compns. of lithium alloys for **anode** active mass in secondary lithium **batteries**)
RN 12025-84-2 HCAPLUS
CN Germanium, compd. with lithium (5:22) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	5	7440-56-4
Li	22	7439-93-2

IC ICM H01M004-40
ICS H01M004-02; H01M010-40
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary **battery cathode** lithium bismuth alloy; antimony lithium alloy secondary **battery cathode**; silicon lithium alloy secondary **battery anode**; germanium lithium alloy secondary **battery anode**
IT **Battery anodes**
(compns. of lithium alloys for **anode** active mass in secondary lithium **batteries**)
IT **Battery cathodes**
(compns. of lithium alloys for **cathode** active mass in secondary lithium **batteries**)
IT Secondary **batteries**
(lithium; compns. of lithium alloys for **cathode** and **anode** active masses in secondary lithium **batteries**)
IT **12025-84-2** 12057-39-5, Lithium silicide (Li22Si5)
(compns. of lithium alloys for **anode** active mass in secondary lithium **batteries**)
IT 12057-30-6 12338-02-2
(compns. of lithium alloys for **cathode** active mass in secondary lithium **batteries**)

L21 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1998:502664 HCAPLUS Full-text
DOCUMENT NUMBER: 129:191543
TITLE: Nonaqueous electrolyte **batteries** containing covalent bonded crystal alloys
INVENTOR(S): Inamasu, Tokuo; Iguchi, Takaki
PATENT ASSIGNEE(S): Yuasa Battery Co., Ltd., Japan; Yuasa Corporation
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

JP 10208740	A	19980807	JP 1997-11115	19970124
JP 3653717	B2	20050602		
PRIORITY APPLN. INFO.:			JP 1997-11115	19970124

ED Entered STN: 13 Aug 1998
AB Claimed **batteries** use **anodes** from alloys containing a covalent bonded crystal and Li. Preferably, the covalent bonded crystal is a Si single crystal. The **batteries** have good charging-discharging characteristics.
IT **211746-68-8P**
(**anodes** containing covalent bonded crystal-Li alloys for nonaq. **batteries**)
RN 211746-68-8 HCAPLUS
CN Germanium alloy, base, Ge 99,Li 1.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	99	7440-56-4
Li	1.1	7439-93-2

IC ICM H01M004-38
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST covalent bond crystal lithium alloy **anode**; **battery** lithium silicon single crystal
IT **Battery anodes**
(**anodes** containing covalent bonded crystal-Li alloys for nonaq. **batteries**)
IT Secondary **batteries**
(lithium; **anodes** containing covalent bonded crystal-Li alloys for nonaq. **batteries**)
IT 117219-39-3P 211746-67-7P **211746-68-8P**
(**anodes** containing covalent bonded crystal-Li alloys for nonaq. **batteries**)

L21 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:178178 HCAPLUS Full-text
DOCUMENT NUMBER: 122:138125
TITLE: Lithium ion-conductive solid electrolyte and process for synthesizing this electrolyte
INVENTOR(S): Minami, Tsutomu; Tatsumisago, Masahiro; Takada, Kazunori; Kondo, Shigeo
PATENT ASSIGNEE(S): Matsushita Electric Industrial Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 618632	A1	19941005	EP 1994-104436	19940321
EP 618632	B1	20000105		
R: DE, FR, GB				
JP 06271332	A	19940927	JP 1993-61639	19930322
JP 3129018	B2	20010129		
PRIORITY APPLN. INFO.:			JP 1993-61639 A	19930322

ED Entered STN: 11 Nov 1994
AB A sulfide-based Li ion-conductive solid electrolyte having a high ion conductivity and a high decomposition voltage contains crosslinking O and Si ions combined with the crosslinking O ions. The electrolyte is synthesized from a plurality of sulfides including SiS2 and Li2S and oxides or oxyacid salts containing ≥1 element selected from Li, B, P, Al, and Ge or from ≥1 sulfide selected from SiS2, B2S3, P2S5, Al2S3, GeS2; Li2S; and oxides or oxyacid salts containing Si.
IT **159076-64-9P**, Germanium lithium silicon oxide sulfide
(battery electrolyte)
RN 159076-64-9 HCAPLUS
CN Germanium lithium silicon oxide sulfide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
S	x	7704-34-9
Ge	x	7440-56-4
Si	x	7440-21-3
Li	x	7439-93-2

IC ICM H01M006-18
ICS C03C004-18; C03C003-062
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 49
IT **159076-64-9P**, Germanium lithium silicon oxide sulfide
159076-65-0P, Lithium phosphorus silicon oxide sulfide 159076-66-1P, Aluminum lithium silicon oxide sulfide 161028-93-9P, Lithium silicon oxide sulfate 161069-84-7P, Carbon lithium silicon oxide sulfate 161069-85-8P, Boron lithium silicon oxide sulfate
(battery electrolyte)

L21 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:107964 HCAPLUS Full-text
DOCUMENT NUMBER: 118:107964
TITLE: Rapidly solidified aluminum-germanium alloys for brazing filler
INVENTOR(S): Das, Santosh K.; Chang, Chin Fong
PATENT ASSIGNEE(S): Allied-Signal, Inc., USA
SOURCE: U.S., 15 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5158621	A	19921027	US 1991-692852	19910429
WO 9219780	A2	19921112	WO 1992-US3172	19920415
WO 9219780	A3	19921223		
W: JP				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
US 5286314	A	19940215	US 1992-917650	19920723
PRIORITY APPLN. INFO.:			US 1991-692852 A	19910429

ED Entered STN: 19 Mar 1993

AB Low-m.p. Al brazing alloys contain 14-52 Ge and 0-10% Si, Mg, Bi, Sr, Li, Cu, Ca, Zn, and/or Sn, and have liquidus at <570°. Melt-quenched alloy foils 250-100 μm thick are suitable for brazing of rapidly solidified Al alloys. The braze filler is used for assembled parts with clamping pressure ≤6.9 MPa. The assembly is heated in vacuum of <10-3 torr (or a reducing atmospheric) to above the braze solidus temperature, and cooled. An assembly from rapidly solidified AA 8009 Al alloy can be brazed at 450°, using the ribbons of Al-35 Ge-2 Si-4% Cu alloy having solidus 425° and liquidus 492°.

IT **146078-39-9**
(braze, foils from melt-quenched, for rapidly solidified aluminum alloys)

RN 146078-39-9 HCAPLUS

CN Aluminum alloy, base, Al 62,Ge 35,Si 2,Li 1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Al	62	7429-90-5
Ge	35	7440-56-4
Si	2	7440-21-3
Li	1	7439-93-2

IC ICM C21D001-00

INCL 148127000

CC 56-9 (Nonferrous Metals and Alloys)

IT 63397-01-3 146078-27-5 146078-28-6 146078-29-7 146078-30-0
146078-31-1 146078-32-2 146078-33-3 146078-34-4 146078-35-5
146078-36-6 146078-37-7 146078-38-8 **146078-39-9**
146078-40-2 146078-41-3 146078-78-6 146078-79-7 146078-80-0
146078-81-1 146078-82-2 146078-83-3 146078-84-4 146078-85-5
146078-86-6 146078-87-7 146078-88-8 146078-89-9 146078-90-2
146078-91-3 146078-92-4 146078-93-5 146078-94-6 146078-95-7
(braze, foils from melt-quenched, for rapidly solidified aluminum alloys)

L21 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1988:593769 HCAPLUS Full-text

DOCUMENT NUMBER: 109:193769

TITLE: Lithium **batteries** with composite **anodes**

INVENTOR(S): Yoshimitsu, Kazumi; Kajita, Kozo; Manabe, Toshikatsu

PATENT ASSIGNEE(S): Hitachi Maxell, Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63133448	A	19880606	JP 1986-279467	19861121
JP 08004002	B	19960117		
PRIORITY APPLN. INFO.:			JP 1986-279467	19861121

ED Entered STN: 25 Nov 1988

AB A Li plate and a Li alloy plate are stacked to form an **anode** with the Li plate in contact with an **anode** case in a **battery** having Li+-conductive organic electrolyte. The alloy contains Al, Sn, Mg, Pb, Bi, Zn, Ge, Si, Sb, In,

and/or Ga and 70-95 atomic% Li. Thus, 0.01-mm-thick Al-80 atomic% Li alloy sheets were stacked with 0.39-mm-thick Li sheets to form **anodes** for MnO2 **batteries** using a 0.8M LiClO4/2:1 (volume) propylene carbonate-MeOC2H4OMe electrolyte. None of the invention **batteries** showed short circuiting after a vibration test (JIS C 5025) and their internal resistance increased by 54% after storage at 60°, whereas resistance of **batteries** using only Li plates increased by 160%, and 87% of **batteries** using Al sheets in place of the Al-Li alloy sheet for in-situ alloying showed short circuiting after the vibration test and had a 68% increase in resistance after storage.

IT **117300-83-1**, Germanium 10, lithium 90 (atomic)
(**anodes** covered with, lithium, for **batteries**)

RN 117300-83-1 HCAPLUS

CN Germanium alloy, base, Ge 54,Li 46 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	54	7440-56-4
Li	46	7439-93-2

IC ICM H01M004-06
ICS H01M004-40

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56

ST **battery** lithium aluminum alloy **anode**

IT **Anodes**
(**battery**, lithium, covered with lithium alloys, for prevention of short circuiting and resistance increase)

IT 66118-77-2 91610-19-4, Lithium 90, magnesium 10 (atomic) 110021-54-0, Lead 25, lithium 75 (atomic) 117300-81-9, Aluminum 20, lithium 80 (atomic) 117300-82-0, Bismuth 20, lithium 80 (atomic) **117300-83-1**, Germanium 10, lithium 90 (atomic) 117300-84-2, Lithium 90, silicon 10 (atomic) 117300-85-3, Lead 15, lithium 85 (atomic) 117300-86-4, Antimony 20, lithium 80 (atomic) 117300-87-5, Indium 15, lithium 85 (atomic) 117300-88-6, Gallium 15, lithium 85 (atomic)
(**anodes** covered with, lithium, for **batteries**)

IT 7439-93-2, Lithium, uses and miscellaneous
(**anodes** from lithium alloy-covered, for **batteries**)

L21 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1985:429161 HCAPLUS Full-text

DOCUMENT NUMBER: 103:29161

TITLE: Lithium alloys for **battery anodes**

AUTHOR(S): Nielsen, T. Steen; Soerensen, O. Toft

CORPORATE SOURCE: Forsoegsanlaeg Risoe, Roskilde, 4000, Den.

SOURCE: Risoe Natl. Lab., [Rep.] Risoe-M (1985), Risoe-M-2496, 64 pp.
CODEN: RNLDD7; ISSN: 0418-6435

DOCUMENT TYPE: Report

LANGUAGE: Danish

ED Entered STN: 27 Jul 1985

AB The purpose of this project was to prepare Li alloys and to characterize their electrochem. properties to evaluate their application in solid-state **batteries** as neg. **electrodes**. The alloys were prepared in a DTA apparatus in closed stainless steel crucibles by melting Li together with the elements from IIA, IIIA, and IVA Groups and Group IIB of the Periodic system. The electrochem.

properties of these alloys were examined by cyclic voltammetry. Generally, their free potentials with respect to Li were +200 to +600 mV, which is the decrease in cell voltage obtained when a Li alloy **electrode** is used instead of pure Li. The discharge and charge rates of the alloys were evaluated from the maximum c.d. values obtained. Compared to β-LiAl, smaller c.d. values were generally observed for the alloys prepared from the metals of Groups IIA and IIB except for LiHg, which however only contains 3 weight % Li. The alloys from Group IIIA, of which Al also is a member, all showed about the same c.d. values, whereas some of the alloys from Group IVA gave significantly higher c.d. values thani did β-LiAl. The highest values were observed for the compound Li22Sn5, which had a maximum c.d. 3-fold that of β-LiAl. A technique for preparation of thin film LiAl **electrodes** by electroplating Li on Al foils was developed. With this technique **electrodes** with a capacity of 25 C/cm2 could be obtained. These **electrodes** showed much higher c.d. values than did those prepared by melting.

IT **97037-10-0**
(**anodes**, for **batteries**)
RN 97037-10-0 HCAPLUS
CN Germanium alloy, base, Ge 72,Li 28 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	72	7440-56-4
Li	28	7439-93-2

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 56
ST lithium alloy neg **electrode**; **anode** lithium alloy **battery**; aluminum lithium alloy **anode**; **battery anode** lithium alloy; electrolytic polarization lithium alloy
IT **Anodes**
(**battery**, lithium alloys for)
IT Lithium alloy, base
(**anodes**, for **batteries**)
IT 12612-83-8 12612-95-2 12615-39-3 39314-92-6 61234-06-8 67070-82-0 97037-00-8 97037-01-9 97037-02-0 97037-03-1 97037-04-2 97037-05-3 97037-06-4 97037-07-5 97037-08-6 97037-09-7 **97037-10-0** 97037-11-1 97037-12-2
(**anodes**, for **batteries**)

L21 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1983:478883 HCAPLUS Full-text
DOCUMENT NUMBER: 99:78883
TITLE: Electrochemical study of solid alloys of the lithium-germanium system
AUTHOR(S): Nikolaev, V. P.; Demidov, A. I.; Morachevskii, A. G.
CORPORATE SOURCE: Vses. Nauchno-Issled. Inst. Akkumulyatornyi, Leningrad, USSR
SOURCE: Elektrokhimiya (1983), 19(6), 841-3
CODEN: ELKKAX; ISSN: 0424-8570
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 12 May 1984
AB Solid alloys based on Li are prospective **anode** materials for mean-temperature **batteries** with molten electrolytes. In this connection, the thermodn. properties and electrochem. behavior were studied of alloys of the Li-Ge

system. The electrolyte was molten eutectic of LiF-LiCl-LiBr for coulometric, and electromotive force measurements and for plotting the discharge characteristics of the **electrode** -alloy. For plotting polarization curves, the melt LiF-LiCl-KCl of eutectic composition was used. The dependence of the Li-Ge alloy **electrode** potential on the alloy composition and thermodn. characteristics of the solid alloys at 723 K are presented. The study of the charge-discharge characteristics of the **electrode** based on a Li-Ge alloy (xLi = 0.79) at c.d. 100, 570, 1030 and 1970 A/m2 shows that the utilization factor of Li depends little on the c.d. and amts. to 95-97%.

IT **81065-18-1 81065-20-5 81065-21-6**
86712-77-8 86712-78-9 86712-79-0
(electrolytic polarization of, in molten halide)

RN 81065-18-1 HCAPLUS
CN Germanium alloy, base, Ge 82,Li 18 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	82	7440-56-4
Li	18	7439-93-2

RN 81065-20-5 HCAPLUS
CN Germanium alloy, base, Ge 74,Li 26 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	74	7440-56-4
Li	26	7439-93-2

RN 81065-21-6 HCAPLUS
CN Germanium alloy, base, Ge 70,Li 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	70	7440-56-4
Li	30	7439-93-2

RN 86712-77-8 HCAPLUS
CN Germanium alloy, base, Ge 78,Li 22 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	78	7440-56-4
Li	22	7439-93-2

RN 86712-78-9 HCAPLUS
CN Germanium alloy, base, Ge 84,Li 16 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	84	7440-56-4
Li	16	7439-93-2

RN 86712-79-0 HCAPLUS
CN Germanium alloy, base, Ge 91,Li 8.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	91	7440-56-4
Li	8.7	7439-93-2

CC 72-2 (**Electrochemistry**)
Section cross-reference(s): 69
ST lithium germanium solid alloy thermodn; **battery** **anode** lithium germanium alloy
IT **Anodes**
(**battery**, lithium-germanium alloys, solid-state)
IT 7440-56-4, properties **81065-18-1 81065-20-5** **81065-21-6 86712-77-8 86712-78-9** **86712-79-0**
(electrolytic polarization of, in molten halide)

L21 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1983:42874 HCAPLUS Full-text
DOCUMENT NUMBER: 98:42874
TITLE: Electrochemical behavior of lithium-germanium alloys in lithium chloride-potassium chloride and lithium chloride-potassium chloride-cesium chloride eutectic melts
AUTHOR(S): Grigor'eva, E. M.; Volgin, M. A.; L'vov, A. L.
CORPORATE SOURCE: Sarat. Gos. Univ., Saratov, USSR
SOURCE: Elektrokhimiya (1982), 18(11), 1473-7
CODEN: ELKKAX; ISSN: 0424-8570
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 12 May 1984
AB In view of the fact that Li-Ge alloys have a high m.p. in the range 70-85at.% Li and a high mobility of Li through the solid phase, as well as a comparatively low activation energy for Li diffusion, alloys of the Li-Ge system are good prospects for active **anode** materials for low-temperature and intermediate-temperature **batteries** with fused electrolytes.
IT **84150-39-0**
(electrochem. behavior of, in alkali metal chloride melts)
RN 84150-39-0 HCAPLUS
CN Germanium alloy, base, Ge 72-88,Li 12-28 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	72 - 88	7440-56-4
Li	12 - 28	7439-93-2

CC 72-3 (**Electrochemistry**)
Section cross-reference(s): **52**
ST lithium germanium alloy chloride melt; **battery** lithium germanium chloride melt; **anode** **battery** lithium germanium alloy
IT **Anodes**
(**battery**, lithium-germanium alloy electrochem. behavior in alkali metal chloride melts in relation to)
IT **84150-39-0**
(electrochem. behavior of, in alkali metal chloride melts)

L21 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:566198 HCAPLUS Full-text

DOCUMENT NUMBER: 97:166198
TITLE: Lithium-germanium **electrodes** for **batteries**
INVENTOR(S): Sammells, Anthony F.; St. John, Michael R.
PATENT ASSIGNEE(S): Institute of Gas Technology, USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4346152	A	19820824	US 1980-169962	19800718
PRIORITY APPLN. INFO.:			US 1980-169962	19800718

ED Entered STN: 12 May 1984
AB A **battery anode** comprises an electrochem. active material from Li-Ge alloy [**54355-30-5**], Li-Ge-Si alloy, and/or Li-Ge-Al alloy and a current collector support. Thus, a Li-Ge alloy **electrode** was fabricated by using an AISI 1020 steel concave current collector. Ge powder (0.177 g) having a particle size of -200 to 300 mesh was placed in the concavity. Steel screen having 400 mesh openings was welded over the concavity to retain the Ge in position. A half cell was assembled in the uncharged state with LiCl-KCl eutectic. The cell was operated at 400-430°, 9.8 mA/cm2, and the alloy **electrode** loading of 0.287 A-h. The **electrode** was charged-discharged over the range of Ge to Li22Ge5 through 15 cycles over 35 days with no apparent loss in capacity or coulombic efficiency.
IT **54355-30-5**
(**anodes**, **battery**, manufacture of steel grid-containing)
RN 54355-30-5 HCAPLUS
CN Germanium alloy, nonbase, Ge,Li (9CI) (CA INDEX NAME)

Component	Component Registry Number
Ge	7440-56-4
Li	7439-93-2

IC H01M004-40
INCL 429112000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56
ST **battery anode** lithium germanium alloy
IT **Anodes**
(**battery**, germanium-lithium alloy, manufacture of)
IT **54355-30-5**
(**anodes**, **battery**, manufacture of steel grid-containing)

L21 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1982:112193 HCAPLUS Full-text
DOCUMENT NUMBER: 96:112193
TITLE: Thermodynamic studies of lithium-germanium alloys: application to negative **electrodes** for molten salt **batteries**
AUTHOR(S): St. John, M. R.; Furgala, A. J.; Sammells, A. F.
CORPORATE SOURCE: Inst. Gas Technol., Chicago, IL, 60616, USA
SOURCE: Journal of the Electrochemical Society (1982),

129(2), 246-50
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 12 May 1984

AB The use of Ge as an alloying agent for Li neg. **electrodes** in fused salt cells was studied in a cell of the type: Li|LiCl 46.8, KCl 53.2 %|Li-Ge alloy between 360-440°. The Li-Ge **electrode** could be charged and discharged reversibly with Li. Five distinct 2-phase plateau regions, together with a suspected 6th region, were identified by coulometrically charging and discharging the cell. The 1st distinct 2-phase plateau regions are believed to occur during the formation of LiGe, Li3Ge4, Li16Ge5, Li15Ge4, and Li22Ge5. The Gibbs free energies of formation for these alloys were determined by integrating the coulometric titration curve to the appropriate Li composition The electromotive force vs. temperature dependencies of the 4 most neg. 2-phase plateau regions were measured between 360-440°, and the entropy of formation was calculated for each alloy associated with these plateaus. The electromotive force measurements also allowed the determination of the partial molar Gibbs free energy and the corresponding activities of Li and Ge in the observed plateaus. Preliminary corrosion tests of low-C steel toward Ge were conducted. A comparison of Li-Ge alloys was made with the 2 dominant alloys used in the Li alloy/metal sulfide **battery**: Li-Ge.

IT **81065-18-1 81065-19-2 81065-20-5**
81065-21-6
(electrochem. formation and thermodn. of formation of, **electrode** for salt melt **batteries** in relation to)

RN 81065-18-1 HCAPLUS
CN Germanium alloy, base, Ge 82,Li 18 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	82	7440-56-4
Li	18	7439-93-2

RN 81065-19-2 HCAPLUS
CN Germanium alloy, base, Ge 77,Li 23 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	77	7440-56-4
Li	23	7439-93-2

RN 81065-20-5 HCAPLUS
CN Germanium alloy, base, Ge 74,Li 26 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	74	7440-56-4
Li	26	7439-93-2

RN 81065-21-6 HCAPLUS
CN Germanium alloy, base, Ge 70,Li 30 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ge	70	7440-56-4

Li 30 7439-93-2

CC 72-3 (**Electrochemistry**)
Section cross-reference(s): **52**, 68, 69
ST thermodn electroformation lithium germanium alloy; **electrode** **battery** lithium germanium alloy; activity lithium germanium alloy; potential lithium germanium alloy
IT Entropy
Free energy
(of formation, of lithium-germanium alloys, **electrode** for fused salt **batteries** in relation to)
IT **Anodes**
(**battery**, lithium-germanium alloys, in fused salts)
IT 12623-02-8 **81065-18-1 81065-19-2**
81065-20-5 81065-21-6
(electrochem. formation and thermodn. of formation of, **electrode** for salt melt **batteries** in relation to)

L21 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1964:430697 HCAPLUS Full-text
DOCUMENT NUMBER: 61:30697
ORIGINAL REFERENCE NO.: 61:5305b-c
TITLE: Conversion of niobium-tungsten alloy wastes
AUTHOR(S): Gaidukov, G. V.; Shveikin, G. P.; Alyamovskii, S. I.
SOURCE: Tsvetnye Metally (Moscow, Russian Federation) (1964), 37(2), 82-3
CODEN: TVMTAX; ISSN: 0372-2929
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
AB The wastes contained Nb 95.0-7.3, W 0.5-4.5, and Fe 0.01-2.5%. Nb-W alloys of good quality were obtained by a 2-stage treatment: pickling 30-50 min. at 60° in HNO3-NaF aqueous solution or heating at 1900-50° and 1 + 10-4-10-6 mm. Hg., followed by are melting with a nonconsumable W **electrode** in a pure He atmospheric
IT **12025-84-2**
(Derived from data in the 7th Collective Formula Index (1962-1966))
RN 12025-84-2 HCAPLUS
CN Germanium, compd. with lithium (5:22) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Ge	5	7440-56-4
Li	22	7439-93-2

CC 20 (Nonferrous Metals and Alloys)
IT **12025-84-2** 67070-82-0
(Derived from data in the 7th Collective Formula Index (1962-1966))

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               D COST

     FILE 'HCAPLUS' ENTERED AT 08:00:11 ON 15 OCT 2007
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L1             1 SEA ABB=ON  PLU=ON  (WO2005-US13268/PRN OR WO2005-US13268/A
                 P)

     FILE 'REGISTRY' ENTERED AT 08:00:55 ON 15 OCT 2007
L2             5 SEA ABB=ON  PLU=ON  (11148-21-3/BI OR 1333-74-0/BI OR
                 7440-37-1/BI OR 7440-56-4/BI OR 897927-98-9/BI)
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     FILE 'REGISTRY' ENTERED AT 08:03:28 ON 15 OCT 2007
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L7             2 SEA ABB=ON  PLU=ON  L6 NOT L4

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L8          1158 SEA ABB=ON  PLU=ON  LI(L)GE/ELS
L9           877 SEA ABB=ON  PLU=ON  LI(L)GE/ELS(L)2-5/ELC.SUB

     FILE 'HCAPLUS' ENTERED AT 08:38:35 ON 15 OCT 2007
L10         1218 SEA ABB=ON  PLU=ON  L9

     FILE 'REGISTRY' ENTERED AT 08:38:46 ON 15 OCT 2007
L11           51 SEA ABB=ON  PLU=ON  L9(L)2/ELC.SUB
L12            6 SEA ABB=ON  PLU=ON  L9 AND SI

     FILE 'HCAPLUS' ENTERED AT 08:40:21 ON 15 OCT 2007
L13           64 SEA ABB=ON  PLU=ON  L11
L14            4 SEA ABB=ON  PLU=ON  L12
L15           16 SEA ABB=ON  PLU=ON  L13 AND ELECTROCHEM?/SC,SX
L16           19 SEA ABB=ON  PLU=ON  L14 OR L15
L17            1 SEA ABB=ON  PLU=ON  L16 AND L1
L18           14 SEA ABB=ON  PLU=ON  L13 AND (BATTER? OR ANOD? OR CATHOD?
                 OR ELECTROD?)
L19           20 SEA ABB=ON  PLU=ON  L16 OR L18
L20            1 SEA ABB=ON  PLU=ON  L13 AND (NANOTUB# OR NANOSTRUCTURE? OR
                 NANOCRYST? OR NANOROD? OR NANOCOMPOSIT? OR NANOSCAL? OR
                 NANOPARTICL? OR NANO(A)(TUB# OR STRUCTUR? OR CRYST? OR
                 ROD? OR COMPOSIT? OR SCAL? OR PARTICL?))
L21           20 SEA ABB=ON  PLU=ON  L19 OR
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